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# Terms of Reference

# for Dam Review Panel (dRP)

## Introduction and Objectives

There are situations where dams have been designed, constructed and placed into operation with minor or no participation of a Dam Review Panel (DRP) or have been in operation for many years without thorough examination. In support of the Government of [county]'s overall [dam safety assurance program], the condition and safety evaluation is needed for the existing dams or partially completed dams. There are also situations where new projects under [donor] loans will depend upon upstream dams already constructed and operated in association with other non-[donor] funded projects. It is the [donor]'s policy that these facilities must be initially reviewed and subsequently be monitored in the Government of [county]'s [dam safety assurance program].

The following is therefore outlined to guide the direction of activities of a DRP for existing dams.

The primary objective of activating a DRP is to provide an independent and high-level technical evaluation of the dam safety status of the existing dams. The reports of the DRP are to become the basis for conducting any identified remedial or rehabilitative actions necessary to upgrade the dam safety.

## Organization and Membership

The DRP shall consist of members with expertise in each of the four disciplines:

1. flood hydrology,
2. dam design,
3. engineering geology, (dam foundations) and
4. dam operation and maintenance. Should the project contain hydropower generation an integral part of the dam and outlet works system, an expert on hydropower systems shall also be included on the DRP.

A chairman shall be appointed by the Government of [county] to coordinate the communications of the DRP, to call and chair its meetings to ensure the membership's objectivity and to provide balance to its reviews and recommendations. The person responsible for the Government of [county]’s official correspondence with the DRP chairman shall be (......... ).

The Government of [county] shall also appoint a senior staff member to support the DRP and to assist them in all arrangements.

## Meetings

The DRP shall meet as frequently as necessary during the first year of the appointment in order to assess the status of the dams assigned and to present recommendations. A meeting of the DRP will be held no later than six months following the submittal of the first report to allow a review of the actions taken by the Government of [county].

After the remedial work has been completed, the DRP shall meet as requested by the Government of [county]. At least one of the two initial evaluation meetings shall be an on-site field inspection.

## Specific Actions

The DRP shall make a general review of the project records and history to become familiar with its operational requirements and their relationship to the dams involved. With this background the specific elements to be reviewed and evaluated by the DRP shall include, but not be limited, to the following:

(a) Review as-built or design drawings and construction specifications.

(b) Review design records including geological reports, foundation investigations, materials testing, materials strength parameters and stability analysis.

(c) Review construction records, and recent operation and maintenance records, including any instrumentation data.

(d) Review the criteria, methodology and determination of the design flood, flood routing studies and the spillway sizing. Examine spillway operation records and evaluate the adequacy of the spillway capacity.

(e) Perform a field inspection, utilizing a standardized and advance prepared checklist. The DRP shall note the condition of the elements on the checklist and categorize the status as satisfactory, fair, poor, and unsatisfactory. Additional narrative will be provided for categories that are poor and need upgrading or are unsatisfactory.

(f) With the notes from the field inspection and design review, the DRP shall make a critical evaluation of actions needed to assure the safety of the dam. These actions shall be categorized in regard to urgency.

(g) In some cases additional field data will be required before evaluating or the Government of [county]'s corrective designs can be made. The DRP will evaluate the need for additional drilling, sampling, laboratory testing or installation of piezometers, seepage measuring devices, survey, slope inclinometers, extensometers or other field exploration.

(h) The Government of [county] shall make the operations and maintenance personnel of the dam available to respond to the DRP's questions at the time of the field inspections. The observations of the operators shall be documented and become a part of the DRP evaluation report. Field operational records such as reservoir levels, outlet releases, spillway discharges and any instrumentation records shall be made available and shall be reviewed by the DRP.

1. **Reports**

The DRP shall document the results of each of their meetings and of the overall conclusions and recommendations following the field inspection and evaluation.

The minutes of meetings shall be prepared, signed by all members and presented to the Government of [county], prior to the departure of the members. The minutes shall briefly outline areas of concern, requests for additional analysis and present recommendations for action if any. Within 3 weeks the minutes may be supplemented by the field inspection checklists and records of interviews with field staff additional analysis, discussion or referencematerials provided by the DRP members. Any item urgent to the safety of the dam should be brought immediately to the attention of the Government of [county] in writing in a special brief communication, prior to recording the minutes of the meeting.

The DRP shall not perform any remedial designs but should give general recommendations for potential solutions and approaches for corrective or rehabilitative measures. After the Government of [county] has developed a program for modification or rehabilitation, the DRP shall be called into session to provide a review of the measures proposed. The Government of [county] will provide copies of each report to the [donor]. The Government of [county] may append a statement of actions taken on recommendations of the previous panel meeting.

1. **Support Services**

The Government of [county] shall make available the designers, consultants or operators for discussions with the DRP at the request of the DRP. The Government of [county] will provide the necessary background information, relevant data, design record, construction records, and operation records that related tothe dam safety status. The DRP shall also be free to ask the designers or other experts to conduct additional studies relating to the safety of the dams being evaluated.

The Government of [county] shall provide clerical, drafting and reproduction services for the preparation of the DRP reports. The Government of [county] shall take necessary actions to allow prompt travel clearance of DRP members or specialists requested by DRP and shall provide full physical access to the project sites.